

# The Relationship between Posttraumatic Growth and Social Support in Patients with Myocardial Infarction

Rabee Rahimi, RN, MS, Mehdi Heidarzadeh, RN, PhD, and Rahimeh Shoaee, Expert Nurse, RN

## Abstract

The present study was conducted to examine the concept of post-traumatic growth (PTG) and its relationship with social support in patients with myocardial infarction. The study included 166 patients with myocardial infarction admitted to heart clinics in Bonab, Iran. Data were collected using the Post Traumatic Growth Inventory and the Clinical Social Support Scale. A positive, moderate relationship between social support and PTG ( $p < 0.001$ ;  $r = 0.361$ ) was found. Talking to others, providing

tangible goods, and giving information about the disease may facilitate cognitive processing and adaptation, which, in turn, can lead to more PTG. Given the positive relationship between social support and PTG, nurses, families, and other sources of social support can provide emotional, instrumental and informational supports to increase positive psychological behaviours in patients with myocardial infarction.

**Key words:** posttraumatic growth, social support, myocardial infarction, heart disease

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## Article Highlights

- Social support, specifically emotional, instrumental and informational support, is one of the most important factors involved in increasing posttraumatic growth in individuals with the experience of clinical trauma such as myocardial infarction
- The patient's family members, friends and nurses and social organizations can help promote posttraumatic growth in these individuals by providing them with emotional, instrumental and informational support

## Background

Recent studies suggest individuals who survive stressful events live to experience positive psychological changes (Ramos & Leal, 2013). Positive psychological changes, termed “posttraumatic growth (PTG)”, are composed of the experience or subjective perception of positive psychological changes occurring as a result of having struggled with a stressful event (Tedeschi & Calhoun, 1996) and include the greater appreciation of life and changed sense of priorities, more intimate relationships with others, a greater sense of personal strength, spiritual development, new possibilities, and the profound sense of having found a meaning (Ramos & Leal, 2013; Tedeschi & Calhoun, 1996).

The majority of studies conducted on PTG have focused on non-clinical subjects. However, PTG can also be the focus of research on individuals experiencing chronic diseases or medical disorders. Several studies have been conducted on

this subject for patients with cancer, spinal cord injury, multiple sclerosis and rheumatoid diseases (Ackroyd et al., 2011; Baglama & Atak, 2015; Dirik & Karanci, 2008; Heidarzadeh et al., 2014; Kalpakjian et al., 2014).

Myocardial infarction is a stressful event that leads to many physical, psychological and social problems for the patient (Garnefski, Kraaij, Schroevers, & Somsen, 2008; Hosseini, Ghaemian, Mehdizadeh, & Ashraf, 2014). A review of literature suggests patients encounter numerous complications, such as congestive heart failure, cardiac arrhythmia, loss of job, certain physical disabilities and mental disorders such as anxiety and depression (Hawkes et al., 2013; Hosseini, Ghaemian, Mehdizadeh, & Ashraf, 2014). Collectively, these problems can reduce their overall level of well-being and quality of life. In fact, experiencing a life-threatening condition such as myocardial infarction that occurs suddenly and unexpectedly and contains a ‘death threat’ can inspire growth in the positive aspects of life in the patient.

Only a few clinical studies have addressed the concept of PTG in patients after the incidence of myocardial infarction, including one that examined PTG in cardiac patients using the posttraumatic growth inventory (Sheikh, 2004) and reported the patients’ growth rate as moderate. In another study, 65% of women with myocardial infarction showed positive changes after this incidence (Norekval et al., 2008). In the study by Leung et al. (2012) cardiac patients indicated some degree of posttraumatic growth, so that greater posttraumatic growth was related to greater objective risk of morbidity in them (Leung et al., 2012). However, these studies did not closely examine the different dimensions of growth identified in patients with myocardial infarction.

The present study used the cognitive processing theory of posttraumatic growth proposed by Tedeschi and Calhoun (2004) as its theoretical framework (Tedeschi & Calhoun, 2004). The cognitive process theory suggests the experience of a highly stressful life event may eliminate some key elements of the person's life goals and worldviews, as these individuals tend to automatically reflect back on the event, re-evaluate and redefine their beliefs and goals and try to find a meaning in the event itself, which eventually leads to their growth (Tedeschi & Calhoun, 2004).

According to the cognitive processing theory, one of the most important factors that associate with PTG is social support. Social support is the amount of love, attention and assistance the patient receives from his family members and friends and the other people involved in his life (Cobb, 1976). Having the social support of others can help in finding positive meanings and achieving degrees of PTG. Support can be emotional, instrumental or informational (Cobb, 1976; Schroevers, Helgeson, Sanderman, & Ranchor, 2010; Zamanzadeh, Heidarzadeh, Oshvandi, & Lakdizaji, 2007). The cognitive processing theory of PTG does not explain which type of social support (emotional, instrumental or informational) is most beneficial for the experience of PTG. In addition, there are a few studies that describe the relationship between all types of social support and PTG. In one study, Schroevers et al. (2010) suggest that getting emotional support from one's family and friends during the period following the diagnosis of cancer is an important resource for cancer survivors that helps them find positive meanings in their experience of the disease (Schroevers et al., 2010). In another study on the subject, Nenova et al. tested the hypothesis that emotional support and instrumental support explain each a unique amount of the variance in PTG in 49 distressed hematopoietic stem cell transplant (HSCT) survivors. The results of their study showed that both emotional and instrumental social supports are positively correlated with PTG (Nenova, DuHamel, Zemon, Rini, & Redd, 2013).

## Purpose of the Study

Although a few studies have reported the lack of any relationships between PTG and social support (Cryder, Kilmer, Tedeschi, & Calhoun, 2006; Widows, Jacobsen, Booth-Jones, & Fields, 2005), most others (Danhauer et al., 2013; Jia, Ying, Zhou, Wu, & Lin, 2015; McDonough, Sabiston, & Wrosch, 2014; Mo, Lau, Yu, & Gu, 2014; Nenova et al., 2013; Senol-Durak & Ayvasik, 2010) have reported a significant positive relationship between social support and PTG. However, they have not paid enough attention to explaining the associations of all the different types of social support (including emotional, instrumental and informational support) with PTG, particularly in patients with myocardial infarction. The purpose of this study is to determine the relationship between social support and PTG.

## Method

### Design

The descriptive correlation study is part of a larger project (factors related to quality of life in patients with myocardial infarction) carried out in Islamic Azad University, Bonab branch. Convenient sampling was used to select all the patients presenting to the Heart Clinic if they met the inclusion criteria (including consent to participate in the study); so, the first author invited them to the study, briefed them on the objectives of the study, reassured them of the confidentiality of the data and obtained written consent, and then the questionnaires were filled out by the participants.

### Sample

The current study population consisted of patients with myocardial infarction admitted to the heart clinic of Imam Khomeini Hospital in Bonab. The study inclusion criteria consisted of having a minimum age of 21 years (adult patients), having a definite myocardial infarction diagnosis made by a cardiologist, being willing to participate in the study, having the power to communicate and being able to answer the questions accurately (patients with severe psychological disorders or Alzheimer's were excluded), and the elapse of at least three months from the subject's incidence of myocardial infarction (it is assumed that living with MI-induced tension for at least three months can cause psychological changes in patients).

The sample size for investigating PTG was determined 100 people, using the results of previous studies, standard deviation 20, acceptable error ( $d = 4$ ) with confidence interval of 95%. A total of 312 patients with myocardial infarction were admitted to the clinic over a period of 18 months. However, 124 were excluded, as they did not meet the inclusion criteria, and 166 of the remaining 188 patients (88/3%) consented to filling out the questionnaires.

### Instruments

The instruments used in the present research included a demographic characteristics questionnaire, the Posttraumatic Growth Inventory (PTGI) and the Clinical Social Support Scale (CSSS). The demographic characteristics questionnaire included items such as age, gender, marital status, level of education, occupation, place of residence and duration of the disease. The PTGI was designed in 1996 by Tedeschi and Calhoun to evaluate the concept of PTG. The instrument has 21 items that determine five domains of psychological growth following a stressful event (new possibilities, relating to others, appreciation of life, personal strength and spiritual changes). This instrument is scored based on a six-point Likert scale, with the first item ("no") receiving a score of zero and the second to sixth items ("very little", "little", "moderate", "much" and "very much") receiving scores from 1 to 5; the total score obtained ranges from zero to 105 and higher scores indicate a higher PTG and lower scores a lower growth (Tedeschi & Calhoun, 1996). The PTGI had a good

Dimension	Number of Items	Minimum Score Obtained	Maximum Score Obtained	Mean	Standard Deviation	Mean Score of Items in each Dimension
New Possibilities	5	2	25	14.98	5.39	3.00
Relating to Others	7	3	35	23.83	6.73	3.40
Personal Strength	4	1	20	12.69	4.32	3.17
Appreciation of Life	3	2	15	9.57	2.94	3.19
Spiritual Changes	2	0	10	7.33	2.27	3.66
Total Posttraumatic Growth Score	21	11	104	68.39	19.40	3.25

Dimension	Number of Items	Minimum Score Obtained	Maximum Score Obtained	Mean	Standard Deviation	Mean Score of Items in each Dimension
Emotional Support	9	14	36	28.00	4.36	3.11
Instrumental Support	10	17	36	26.88	4.27	2.68
Informational Support	4	4	16	11.22	2.31	2.80
Total Social Support Score	23	40	86	66.10	9.06	2.87

overall internal consistency ( $\alpha=0.95$ ) and an acceptable internal consistency in five dimensions ( $\alpha=0.67-0.87$ ).

Social support was measured in the patients using the CSSS developed by Zamanzadeh et al. (2007) as the main instrument (Zamanzadeh et al., 2007). The scale items assessed social support in patients and covered different types of support originating in sources such as the family, friends, relatives, neighbours, co-workers and social support associations. The scale measured three dimensions, including emotional support (nine items), informational support (four items) and instrumental support (10 items). The items were scored based on a four-point Likert scale (a total of 23 items yielding a final score of 23 to 92). The CSSS had already been used in clinical studies conducted in Iran and had a good reliability and validity ( $CVR = 0/92$ ,  $CVI = 0/95$ ;  $\alpha = 0/72 - 0/83$  for the three dimensions, and the test-retest correlation =  $0/82$ ) (Zamanzadeh et al., 2007). The present study also found a good overall internal consistency for the scale ( $\alpha=0.85$ ) and an acceptable internal consistency for its three dimensions ( $\alpha=0.82, 0.68$  and  $0.70$ ).

### Data analysis

The data obtained were then analyzed in SPSS-22 using descriptive statistics (mean, range and frequency) and inferential statistics (the *t*-test and Pearson's test).

### Ethical considerations

The researchers obtained the ethical approval of the Ethics Committee of Islamic Azad University, Bonab branch, prior to beginning the study.

## Findings

The present study analyzed the data collected from 166 patients. The mean age of participants was  $55.3 \pm 14.5$ , ranging from 21 to 90. From the total of 166 patients, 141 were men (84.9%) and 25 were women (15.1%). An average of

$7.78 \pm 2.75$  months, ranging from three to 12 months, had elapsed from the subjects' incidence of myocardial infarction.

The findings obtained showed some degree of growth in all the patients with myocardial infarction participating in this study (100%) and reported their mean score of PTG as  $68.39 \pm 19.40$ . The highest scores obtained for the different dimensions pertained to spiritual changes, relating to others, appreciation of life, personal strength and new possibilities, in respective order (Table 1).

In relation to social support and its dimensions, the social support score was reported as  $66.1 \pm 9.06$  and the highest score obtained for its various dimensions pertained to emotional support, informational support and instrumental support, in respective order (Table 2).

The results obtained showed a significant positive relationship between social support ( $p<0.001$  and  $r=0.361$ ) along with all of its different dimensions, including emotional support ( $p<0.001$  and  $r=0.346$ ), instrumental support ( $p<0.001$  and  $r=0.293$ ) and informational support ( $p<0.005$  and  $r=0.218$ ) and PTG. Emotional support defined PTG changes (11.97%) better than the other two dimensions. In addition, the study found a significant positive relationship between social support and dimensions and the different dimensions of PTG ( $r=0.161-0.425$ ), with only the exception that the relationship between instrumental support and spiritual changes ( $p=0.06$  and  $r=0.146$ ) and the one between informational support and personal strength ( $p=0.056$  and  $r=0.148$ ) was not significant (Table 3). The most significant relationship of all was found between emotional support and relating to others ( $r=0.425$ ).

## Discussion

The study supports the results of previous studies (Garneski, Kraaij, Schroevers, & Somsen, 2008; Sheikh, 2004) in that the experience of a stressful event such as myocardial infarction can have positive psychological effects. The

**Table 3: The relationship of social support and its dimensions with posttraumatic growth and its dimensions in myocardial infarction patients**

Variables	Total PTG	New Possibilities	Relating to Others	Personal Strength	Appreciation of Life	Spiritual Changes
Social Support	$r = 0.361$ $p = .000$	$r = 0.307$ $p = .000$	<b><math>r = 0.407</math></b> <b><math>p = .000</math></b>	$r = 0.295$ $p = .000$	$r = 0.295$ $p = .000$	$r = 0.203$ $p = 0.009$
Emotional dimension	$r = 0.346$ $p = .000$	$r = 0.273$ $p = .000$	<b><math>r = 0.425</math></b> <b><math>p = .000</math></b>	$r = 0.308$ $p = .000$	$r = 0.232$ $p = 0.003$	$r = 0.161$ $p = 0.038$
Instrumental dimension	$r = 0.293$ $p = .000$	$r = 0.252$ $p = 0.001$	$r = 0.332$ $p = .000$	$r = 0.230$ $p = 0.003$	$r = 0.258$ $p = 0.001$	<b><math>r = 0.146</math></b> <b><math>p = 0.061</math></b>
Informational dimension	$r = 0.218$ $p = 0.005$	$r = 0.221$ $p = 0.004$	$r = 0.178$ $p = 0.021$	<b><math>r = 0.148</math></b> <b><math>p = 0.056</math></b>	$r = 0.238$ $p = 0.002$	$r = 0.219$ $p = .005$

highest degree of growth in the study subjects was achieved in the dimensions of 'spiritual changes' and 'relating to others'. However, in the majority of studies conducted in other societies, lower degrees of growth were achieved in the dimension of 'spiritual changes' (Bellizzi et al., 2010; Brix et al., 2013; Hooper, Marotta, & Depuy, 2009; Lee, Luxton, Reger, & Gahm, 2010; Morris, Shakespeare-Finch, & Scott, 2012; Teodorescu et al., 2012). A study examining PTG in cancer patients in Iran found patients to have obtained the highest scores for the dimensions of 'spiritual change' and 'relating to others' (Heidarzadeh et al., 2014). As noted by Farsi et al., spirituality seems to constitute one of the main strategies for coping with stressful events in Iran (Farsi, Dehghan Nayeri, & Negarandeh, 2010; Farsi, Nayeri, & Negarandeh, 2012).

The 'relating to others' dimension was also found to grow more extensively than the other dimensions after the incidence of a life-threatening event; this finding is consistent with the findings of previous studies, which had shown that the particular social structure of Iran enables patients to receive larger amounts of positive attention from the people around them and to communicate more frequently with them in the face of problems such as the incidence of diseases (Zamanzadeh et al., 2007). The higher scores obtained for spiritual changes and relating to others appear to have contributed greatly to the higher score of PTG obtained by the participants of the present study.

In order to determine whether there is a relationship between social support and PTG, consistent with the cognitive processing theory, three different types of social support were assessed, including emotional, instrumental and informational support. A significant relationship between social support and PTG was reported; an increased social support was related to an increased PTG; and 13% of PTG changes were explained by social support. Among the different dimensions of social support and PTG, the highest correlation was found between emotional support and relating to others, which suggests that patients who talk about their experience with others and receive more support from them in the form of reassurance, sympathy and encouragement (known as emotional support), form better dyadic relationships and, therefore, report more PTG. According to the cognitive processing theory, talking

to others may facilitate cognitive processing and adaptation, which then can lead to PTG. Tedeschi and Calhoun (2004) also wrote, "Those who express their problems and ask for help from others can better discover the positive aspects of their stressful event" (Tedeschi & Calhoun, 2004). Schroevers et al. (2010) wrote, "People who experience a stressful event and receive social support from people around them report to feel closer to others" (Schroevers et al., 2010).

These results show that social support is an important factor to predict PTG, but it's not the only factor in this regard. As a result, it explains only 13% of variance in patients with myocardial infarction. Other studies also found social support as a small to moderate predictor of PTG, for example, studies conducted by Schroevers et al. (2010), Nenova et al. (2013) and Yu et al. (2014) found that 8.4%, 8.8%, and 12% of the variance in PTG is defined by social support (Schroevers et al., 2010; Nenova et al., 2013; Yu et al., 2014). Although social support does not strongly predict PTG, the reported findings may be important, as they provide evidence for confirming the cognitive processing theory, which suggests that social support may be associated with PTG (Tedeschi & Calhoun, 2004).

One of the remarkable findings of the present study was the poor relationship between social support (especially instrumental support-providing tangible goods or services assistance by others) and spiritual changes, which suggests that spiritual change is independent of material and instrumental supports from the family, friends or social institutions. Most spiritual changes that occurred in the struggle with chronic diseases (Denney, Aten, & Leavell, 2011; Heidarzadeh et al., 2014) were changes that had occurred subjectively in the individual and were mostly rooted in their inner search for meaning. It is, therefore, not completely unexpected that instrumental support (rather than emotional and informational support) would have the least relationship with spiritual growth in these patients.

Another important and new finding of the present study was the positive relationship between informational support and the dimensions of PTG (except the personal strength dimension), which suggests that giving more information to the patients about the disease process and the method of controlling its progress through the nurses, physicians, families, friends and other sources might help patients with



myocardial infarction find positive changes, such as to appreciate life and embrace new possibilities, whereas none of the previous studies have reported such findings (Danahauer et al., 2013; Jia et al., 2015; McDonough et al., 2014; Mo et al., 2014; Nenova et al., 2013; Schroevers et al., 2010; Senol-Durak & Ayvasik, 2010; Yu et al., 2014).

## Limitations

The limitations of the study included its use of convenience sampling, which makes the generalization of the results subject to caution. Moreover, although this study showed the relationship between social support (emotional, instrumental and information support) and PTG according to the cognitive processing theory, since it was cross-sectional in design, only the current conditions of the patients were assessed. Clinical trials should, therefore, be conducted to clarify the effects of informational support on PTG. In addition, although the Clinical Social Support Scale had a good reliability and validity, comparing the results obtained through this scale with the results obtained through other instruments in other studies is potentially an issue.

Future studies are recommended to investigate other factors affecting PTG in these patients so that plans can be made accordingly to further facilitate their growth and adaptation and improve their quality of life.

## Conclusion

The present study showed that individuals who experience myocardial infarction may end up experiencing positive psychological consequences. Moreover, although this study showed a positive relationship between emotional and instrumental support in the patients examined, positive psychological changes can be predicted by giving the patients more information (informational support) and helping them cope better with their stressful conditions.

## Implications for Practice

Given that emotional, instrumental and informational support are related to positive psychological changes in patients, so interventional strategies focused on providing social support are likely beneficial after incidence of myocardial infarction. There are few recommendations for preparing social support in patients with myocardial infarction. The first step to provide social support is that nurses identify support needs and resources for each patient, and define same goals for support

resources (caregivers, family, friends and support communities). It is very important that nurses, as advisers, carefully listen to patient's words and new thoughts and do not reject them because, according to the cognitive processing theory, these thoughts provide the context for creating positive psychological changes in them. To increase emotional support for patients with myocardial infarction, nurses can examine patient's barriers to communication with support resources and facilitate their communication, because increased communication can have positive effects on patients' recovery process. In this regard, acquainting patients with other patients who have experienced post-traumatic growth in similar conditions can also help. The stress caused by the disease and uncertainty about the future can be controlled by informational support, i.e., by sharing appropriate information with the patients about the disease process and helping them control it and cope with stressful situations. This may lead to positive psychological changes. In addition, nurses can introduce these patients to social support institutions (the main resource for instrumental support) to reduce some of their stress sources and provide the context for post-traumatic growth in them.

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## About the Authors

*Rabee Rahimi, RN, MS, Instructor in Nursing, Bonab Branch, Islamic Azad University, Bonab, Iran*

*Mehdi Heidarzadeh, RN, PhD, School of Nursing and Midwifery, Ardabil University of Medical Sciences, Ardabil, Iran*

*Rahimeh Shoaee, Expert Nurse, RN, Shahid Madani Hospital, Tabriz, Iran*

**Address for correspondence:** *Mehdi Heidarzadeh, RN, PhD, School of Nursing and Midwifery, Ardabil University of Medical Sciences, Ardabil, Iran.*

*Phone: +984533718004*

*Email: m.mahda@gmail.com*

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